

**Claimed is:**

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1. A display controller adapted to display image data received at an input vertical refresh rate on a display having a display vertical refresh rate, comprising:

5 a failsafe enable circuit adapted to generate a failsafe enable signal responsive to the input vertical refresh rate; and

a failsafe circuit adapted to generate an internal vertical refresh rate responsive to the failsafe enable signal, the internal vertical refresh rate being a predetermined fraction of the input vertical refresh rate.

10 2. The display controller of claim 1 wherein the internal vertical refresh rate is provided to the display for displaying the image data at the internal vertical refresh rate.

15 3. The display controller of claim 1 wherein the failsafe enable circuit is adapted to generate the failsafe enable signal responsive to a comparison of the input and display vertical refresh rates.

20 4. The display controller of claim 1 the failsafe circuit comprises:  
a flip-flop adapted to generate a first signal responsive to the input vertical refresh rate;  
an inverter adapted to generate a second signal by inverting the first signal, the second signal being provided to the flip-flop;  
a logic gate adapted to generate the internal vertical refresh rate by logically manipulating the first signal and the input vertical refresh rate;  
a multiplexer adapted to provide the internal vertical refresh rate to an output terminal  
25 responsive to the failsafe enable signal.

5. The display controller of claim 1 wherein the internal vertical refresh rate is half the input vertical refresh rate.

30 6. The display controller of claim 1 wherein there exists two input vertical refresh rate pulses for every one internal vertical refresh rate pulse.

7. The display controller of claim 1 wherein the system controller is adapted to

operate responsive to one of a plurality of modes comprising:

a display first mode wherein a first frame of the image data is displayed on the display while other frames are discarded in a single output frame;

a display last mode wherein a last frame of the image data is displayed on the display while other frames are discarded in the single output frame;

a display all mode wherein all frames of the image data are displayed on the single output frame.

8. The display controller of claim 1 comprising:

a memory adapted to store portions of the image data; and

an image scalar adapted to resize the image data stored in the memory.

9. A system for visually displaying digital images, comprising:

image signals provided to the system one frame at a time, the image signals having an input vertical refresh rate;

a display capable of displaying the image signals having a display vertical refresh rate;

a failsafe enable adapted to identify when the input vertical refresh rate exceeds the display vertical refresh rate and generate an enable signal responsive to the identification;

a failsafe circuit adapted to generate an internal vertical refresh rate a predetermined fraction of the input vertical refresh rate responsive to the enable signal.

10. The system of claim 9 wherein the failsafe circuit comprises:

a flip-flop adapted to generate a first signal responsive to the input vertical refresh rate;

an inverter adapted to invert the first signal;

a logic gate adapted to generate the internal vertical refresh rate by logically manipulating the first signal and the input vertical refresh rate; and

a multiplexer adapted to select the internal vertical refresh rate responsive to the enable signal.

11. The system of claim 9 wherein the display is adapted to display the image signals at the internal vertical refresh rate.

12. The system of claim 11 wherein the internal vertical refresh rate is less than the display vertical refresh rate such that the image signals displayed on the display occupy less than a full vertical length of the display.

5 13. The system of claim 9 wherein the internal vertical refresh rate is half the input vertical refresh rate.

14. The system of claim 13 wherein the failsafe circuit comprises:  
a display first mode wherein a first input frame is displayed on a single output frame  
10 while a second input frame is discarded;  
a display last mode wherein the second input frame is displayed on the single output frame while the first input frame is discarded; and  
display both mode wherein both the first and second input frames are displayed on the single output frame.

15 15. A failsafe circuit, comprising:  
a flip-flop adapted to generate a first signal responsive to an input vertical refresh rate;  
an inverter adapted to invert the first signal;  
a logic gate adapted to generate an internal vertical refresh rate by logically  
20 manipulating the first signal and the input vertical refresh rate, the internal vertical refresh rate being a factor of the input vertical refresh rate; and  
a multiplexer adapted to select the internal vertical refresh rate responsive to the enable signal.

25 16. The failsafe circuit of claim 15 wherein the factor is half.

17. The failsafe circuit of claim 15 wherein the failsafe circuit includes a mode circuit adapted to generate a mode signal responsive to user input indicative of one of a plurality of modes.

30 18. The failsafe circuit of claim 17 wherein the plurality of modes, comprises:  
a display first mode wherein a first frame is received during a predetermined interval is displayed on a single output frame while other frames received during the predetermined

time interval are discarded; and

display all mode wherein all frames received during the predetermined time interval are displayed on the single output frame.

5           19.     A method for automatically displaying digital image data having an input vertical refresh rate on a display having an output vertical refresh rate, comprising:  
enabling a failsafe signal if the input vertical refresh rate exceeds the output vertical refresh rate;

10           providing the display with an internal vertical refresh rate responsive to the failsafe signal, the internal vertical refresh rate being a predetermined factor of the input vertical refresh rate; and

displaying the image data on the display responsive to the internal vertical refresh rate.

15           20.     The method of claim 19 comprising allowing a user to change display settings after displaying the compressed image data.

20           21.     The method of claim 19 wherein displaying includes displaying a compressed image on the display.

25           22.     The method of claim 19 wherein providing comprises generating an internal vertical refresh rate at half the input vertical refresh rate.

            23.     The method of claim 22 wherein compressing comprises displaying a first input frame on an output frame and discarding a second input frame.

            24.     The method of claim 22 wherein compressing comprises displaying a second input frame on an output frame and discarding a first input frame.

30           25.     The method of claim 22 wherein compressing comprises displaying both a first and a second input frame on a single output frame.